SYSTEM AND METHOD FOR
GENERATING A REFERENCE CLOCK

ABSTRACT OF THE INVENTION

5   A system and method are provided for synchronizing a

reference clock to a pseudorandom non-return to zero (NRZ) data stream

in a clock data recovery system. The method comprises: sampling a

pseudorandom NRZ data stream; determining a mean frequency of

transitions (Fd) in the data stream; determining a transition probability

10   (P) associated with the mean frequency of transitions; using a

phase/frequency detector responsive to a VCO frequency, the mean

frequency of transitions, and the transition probability; in response to

using the phase/frequency detector, supplying a voltage controlled

oscillator tuning voltage; generating the VCO frequency responsive to the

15   tuning voltage; using a XOR phase detector to compare the VCO

frequency to the NRZ data stream; in response to using the XOR phase

detector, supplying a voltage controlled oscillator tuning voltage; and,

generating the VCO frequency responsive to the tuning voltage. Also

provided are a system and method for synchronizing a reference clock to a

20   pseudorandom non-return to zero data stream in a clock data recovery

system, and a system and method for generating a reference clock in the

absence of a pseudorandom non-return to zero (NRZ) data stream in a

system including a clock data recovery (CDR) unit.